

**Notice of Allowability**

Application No.

09/919,859

Examiner

Pierre M. Vital

Applicant(s)

MATTAUSCH ET AL.

Art Unit

2188

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment after final filed 6/9/04.
2. ☒ The allowed claim(s) is/are 1-52.
3. ☒ The drawings filed on 02 August 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>6/9/04</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                             | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance              |
|  | 9. <input type="checkbox"/> Other _____.   |

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The declaration filed June 9, 2004 is sufficient to support applicants claim that Figures 1 and 2 are not prior art. As such, the rejection under 35 USC § 112, first paragraph has been withdrawn due the declaration.

### ***Drawings***

2. The objection to the drawings has also been withdrawn due to the declaration filed June 9, 2004.

### ***Specification***

3. The objection to the specification has also been withdrawn due to the declaration filed June 9, 2004.

## **EXAMINER'S AMENDMENT**

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael E. Monaco (Reg. No. 52,041) on August 3, 2004.

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5. The application has been amended as follows:

In claim 33:

line 2, after "data memory", delete --forming a pair with said N-port tag memory--.

In claim 38:

line 2, after "tag memory", delete --forming a pair with said N-port data memory--.

In claim 41:

line 5, after "blocks", please insert --,--;

line 9, after "control", please insert --,--;

line 9, after "conflict", please insert --,--.

In claim 43:

line 2, after "data memory", delete --forming a pair with said N-port tag memory--.

line 6, after "allocated to", replace "acache" with --a cache--.

In claim 45:

line 5, after "blocks", please insert --,--.

line 9, after "control", please insert --,--;

line 9, after "conflict", please insert --,--;

In claim 47:

line 2, after "tag memory", delete --forming a pair with said N-port data memory--.

In claim 51:

line 4, after "the function of", insert --at least one of--;

line 4, after "cell", replace "block" with --blocks--;

line 6, after "blocks", please insert --,--;

line 10, after "control", please insert --,--;

line 11, after "conflict", please insert --,--;

line 15, after "supplied to", delete --at least each of--;

line 15, after "transition", change "circuits" to --circuit--.

In claim 52:

line 4, after "the function of", insert --at least one of--;

line 4, after "cell", replace "block" with --blocks--;

line 6, after "blocks", please insert --,--;

line 10, after "control", please insert --,--;

line 11, after "conflict", please insert --,--;

line 16, after "supplied to", delete --at least each of--;

line 15, after "transition", change "circuits" to --circuit--.

***Reasons for Allowance***

6. The following is an examiner's statement of reasons for allowance:

As per claim 1, although Suzuki (5,274,790) discloses a cache memory apparatus comprising a cache memory having a plurality of ports and multiple-ported tag memories, and an N-port decoder (see Fig. 2 and col. 3, lines 24-43), the reference does not teach or suggest "each multi-port tag memory and each multi-port data memory, respectively, has several single-port cell blocks and multi-port decoders for decoding the multi-cache line indices" in combination with the other elements set forth in the claimed invention.

Therefore, dependent claims 2-30 are allowable as being dependent upon independent claim 1 and having additional allowable features therein.

As per claims 31 and 36, although Suzuki (5,274,790) discloses a cache memory apparatus comprising a cache memory having a plurality of ports and multiple-ported tag memories, and an N-port decoder (see Fig. 2 and col. 3, lines 24-43), the reference does not teach or suggest "An N-port tag memory, comprising: an M-number of one-port cell blocks, M being an integer of one or more; a global switching network serving to impart N-port multi-port functions to the M-number of one-port cell blocks, N being an integer of more than one; wherein the outputs of a conflict management circuit and, for each of the N ports, a first cache line index for identifying the contents of any one or any plurality of the M-number of one-port cell blocks, a second cache line index for selecting

any one or any plurality of the M-number of one-port cell blocks, and a read/write instruction transmitted from a microcomputer core are supplied to at least the global switching network" in combination with the other elements set forth in the claimed invention.

Therefore, dependent claims 32-35 and 37-40 are allowable as being dependent upon independent claim 31 and 36, respectively, and having additional allowable features therein.

As per claims 41 and 45, although Suzuki (5,274,790) discloses a cache memory apparatus comprising a cache memory having a plurality of ports and multiple-ported tag memories, and an N-port decoder (see Fig. 2 and col. 3, lines 24-43), the reference does not teach or suggest "An N-port tag memory, comprising: an M-number of one-port cell blocks, M being an integer of one or more; a port transition circuit for converting the function of the one-port cell block to the function of an N-port block, N being an integer more than one; an M-number of N-port blocks the function of which has been obtained by mounting the port transition circuit to each of the M-number of one-port cell blocks; wherein, for each of the N ports, a first cache line index for identifying the contents of any one or any plurality of the M-number of one-port cell blocks, and a read/write instruction from a microcomputer are supplied to at least the port transition circuits, and the outputs of a conflict management circuit, and, again for each of the N ports, a second cache line index for selecting any one or any plurality of the M-number of one-port cell blocks, and a read/write instruction from a microcomputer core are supplied to

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at least the circuit network performing the address decoding function for the M-number of N-port blocks" in combination with the other elements set forth in the claimed invention.

Therefore, dependent claims 42-44 and 46-48 are allowable as being dependent upon independent claim 41 and 45, respectively, and having additional allowable features therein.

As per claims 49-52, although Suzuki (5,274,790) discloses a cache memory apparatus comprising a cache memory having a plurality of ports and multiple-ported tag memories, and an N-port decoder (see Fig. 2 and col. 3, lines 24-43), the reference does not teach or suggest "An N-port tag memory, comprising: an M.sub.B-number of one-port cell blocks, where M.sub.B is represented by  $M \times M_{\text{sub.S}}$ , each of  $M_{\text{sub.S}}$  and M being an integer of one or more; an M.sub.S-number of global switching networks each serving to impart N-port multi-port functions to an M-number of one-port cell blocks, N being an integer of more than one; wherein the outputs of a conflict management circuit and, for each of the N ports, a first cache line index for identifying the contents of any one or any plurality of the M-number of one-port cell blocks, a second cache line index for selecting any one or any plurality of the M-number of one-port cell blocks, and a read/write instruction transmitted from a microcomputer core are supplied to at least each of the global switching networks" in combination with the other elements set forth in the claimed invention.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (703) 306-5839. The examiner can normally be reached on Mon-Fri, 8:30 am - 6:00 pm, alternate Friday off.

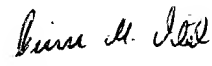
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (703) 306-2903. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 3, 2004

  
Pierre M. Vital  
Examiner  
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